

GUSHCHIN, V.

Wave depth. Rech.transp. 23 no.11:32 N '64.

(MIRA 18:3)

1. Nachal'nik ot dela Rybinskoy gidrometeorologicheskoy observatorii.

GUSHCHIN, V.A.; KAMENETSKIY, V.Ya., inzh., otv. retsenzent;
BEL'CHENKO, A.Ya., inzh., otv. red.; KORETS, P.V.,
tekhn. red.

[Automation of technological processes in the machinery
industry; bibliographical index of literature published
from 1957 to 1960] Avtomatizatsiya tekhnologicheskikh
protsessov v mashinostroenii; bibliograficheskii ukazatel'
(literatura za 1957-1960 gg.) L'vov, 1962. 390 p.
(MIRA 17:3)

1. Akademiya nauk UkrSSR, Kiev. Biblioteka, Lvov.

ARISTOV, V.V.; PETROVA, M.G.; BELOV, P.T.; GUSHCHIN, V.A.

Structure, mineralization and formation of the granite intrusive in
Sherlovaya Gora. Geol.rud.mestorozh. no.6:41-53 N-D '61.
(MIRA 14:12)

1. Moskovskiy geologorazvedochnyy institut imeni S.Ordzhonikidze,
Moskva i Sherlovogorskij gornoobogatitel'nyy kombinat, pos.
Sherlovaya gora.

(Sherlovaya Gora Region--Ore deposits)

GUSHCHIN, V.A.; BEL'CHENKO, A.Ya., inzh. Prinimal uchastiye SHAPOVALOV,
I.I. [deceased]; KAMENETSKIY, V.Ya., inzh., otv. red.; GRINSIPON,
F.O., red.; MALYAVKO, A.V., tekhn.red.

[Modernisation of equipment is an important means of technological
progress; a bibliography] Modernizatsiya oborudovaniia - vazhnoe
sredstvo tekhnicheskogo progressa; bibliograficheskii ukazatel'.
L'vov, Izd-vo L'vovskogo univ., 1960. 151 p. (MIRA 15:12)

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grafii.
(Bibliography--Technological innovations)

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Interaction of complexes formed by hydrogen bonding with a solvent.
Opt. i spektr. 17 no.3:385-390 S '64. (MIRA 17:10)

SHEFTEL', B.T., kand. tekhn. nauk, dotsent; LIPSKIY, G.K., inzh.;
GUSHCHIN, V.A., inzh.

Effect of the waviness of the ring race on the vibration of
a ball bearing. Vest. mashinostr. 45 no.7:49-51 Jl '65.
(MIRA 18:10)

VOSHCHENKO, B.I., inzh.; GUSHCHIN, V.D., inzh.; MARYSHEV, B.S., inzh.

Characteristics of the work of the D-530 road cutter in soil
stabilization. Avt. dor. 27 no.2:20-21 F '64. (MIRA 17:3)

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Intensify the control of soil cement quality. Avtodor. 13 no.615-6
Je '65. (MIRA 73;8)

JOV-49-59-6-3/12

AUTHORS: Shuleykin, V. V., Gushchin, V. F., Peskov, P. I.

TITLE: Oscillations in the Heat Balance of the Atlantic Ocean
(Kolebaniya teplovogo balansa Atlanticheskogo Okeana)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya,
1958, Nr 6, pp 729-740 (USSR)

ABSTRACT: Descriptions of normal investigational methods into heat balance problems are found in Ref.1. The present article considers oscillations in components of the heat balance and their sums in the Atlantic (from day to day) in various regions of interest. It will be shown that these oscillations exceed the corresponding ones averaged over a month. This blurs the general pattern but enables local oscillations (obtained by the ship Sedov) to be considered - the times examined lie between October and December and the latitudes from 50° - $16^{\circ}27'N$. Fig.1 gives the values of some of the elements which change from day to day. Curve 1 shows the change in latitude of a place at true midday in October, November and December 1957. Curve 2 gives the change in solar height at culmination, Curve 3 gives the change in temperature of the water surface and Curve 4 the change in temperature of the air. The first points on all these diagrams (11, 12 and 13 Oct) correspond to the N. Sea. Position coordinates at true noon were cal-

Card 1/12

SOV-49-55-6-3/12

Oscillations in the Heat Balance of the Atlantic Ocean.

culated by A. Kh. Gil'mutdinov. Actinometric and meteorological observations were made by V. F. Gushchin, V. A. Krashnov, P. I. Peskov, I. G. Serebrennikov, V. P. Smirnov, V. G. Fedorov and D. I. Filippov.

1. Heat intake from direct and diffuse solar radiation.

As in the hydrographical ship "Taymyr" (Ref.2), apparatus was used which permitted continuous registration of direct and diffuse radiation falling per cm^2 of horizontal surface (Ref.3). The radiation receiver (a piranometer, mounted in gimbals on the mizzen mast - out of the shade) was connected to a self-recording galvanometer. Every twenty seconds a mark was made on a tape which unrolled at 2 cm/hour (driven by a synchronous electric motor). Examples of these traces (reduced in scale) are given in Fig.2. This instrument was calibrated several times during the voyage by a system due to Yu. D. Yanishevskiy. The scale is not entirely linear, being smaller for small deviations than for large. Had the solar height remained fairly constant, this could have been

Card 2/12

SOV-42-58-6-3/12

Oscillations in the Heat Balance of the Atlantic Ocean.

allowed for by graduating and measuring the traces with a galvanometer. However, the ship worked at various latitudes and a different method was therefore necessary. A trapezium was constructed: the ordinate axis was read from the scale divisions of the galvanometer. Straight lines were then drawn parallel to the abscissa. A millimetre ruler was used to measure the total length of all segments cut off. The time-scale was known from the construction of the instrument and the ordinate of each elementary segment was known by calibration. Thus the result could be obtained. Curve 1 (Fig.6) shows the change in diurnal heat sum per cm^2 of the Atlantic surface (at different stages on the voyage). As can be seen, on clear days the heat sum changes (depending on latitude) from 287 to 506 cal/day/cm 2 , although, in the same region, the variation extends from 56 to 506 cal when cloudy days are included. One of the authors (Ref.1) has introduced a coefficient of solar energy utilisation to characterise the influence of clouds. This can be found by calculating the greatest possible heat sum which can reach 1 cm^2 of a horizontal surface by direct solar radiation in a perfectly clear sky (at a given latitude and day of the year). Such quantities were found for latitudes 60°-90°N
Card 3/12

SOV-49-58-6-3/12

Oscillations in the Heat Balance of the Atlantic Ocean.

(Refs.1, 2) and $50^{\circ}-0^{\circ}$ (Ref.3). Fig.3 gives part of a diagram by N. I. Yegorov for the three months - October, November and December. From this we can obtain q_0 (the quantity described). If the corresponding, actually measured magnitude is q , η ($= q/q_0$) is called the utilization coefficient. The curve marked O in Fig.6 gives values for q_0 . N. I. Yegorov has compared the change in η with the change in cloudiness for the Indian Ocean and the Red Sea (Fig.3, Ref.3). Fig.4 gives a similar comparison for the parts of the Atlantic investigated (small circles - points obtained in October; black dots - points obtained in November, and squares - points obtained in December). The dotted line gives N. I. Yegorov's results for comparison. As he showed in Ref.3, a scatter of points is unavoidable since the amount of cloud, unlike the radiation, is not recorded continuously. A small correction is needed to allow for the fact that q_0

Card 4/12

SOV-49-58-6-3/12

Oscillations in the Heat Balance of the Atlantic Ocean.

is defined for direct radiation whilst q includes also diffuse radiation (thus the experimental curve has some points with $\eta > 1$). A comparison of Yegorov's material with that in the present article indicates that the relation between η and degree of cloud is universal to a sufficiently close approximation.

2. Amount of heat penetrating into the water. Previously, only the amount of heat reaching the surface has been considered. To consider the amount entering the water it is necessary to calculate the extent of reflection. One of the authors has already considered the reflection coefficient of the sea's surface (Ref.1). Sverdrup (Ref.4) has made similar investigations for both direct and diffuse reflection at varying solar heights. On the basis of these calculations, the authors have constructed a diagram of change in reflected energy depending on the hour angle of the Sun. Fig.5, (a) and (b), gives two such diagrams - one corresponding to the Northern course of the 'Sedov' and the other to the Southern. The scales of the two diagrams are different, and, in both cases, the curve for the reflected rays is ten times larger than the curve for the daily variation of direct and diffuse radiation. The reflection coefficient reaches high values

Card 5/12

NOV-49-58-5-3/12

Oscillations in the Heat Balance of the Atlantic Ocean.

at small angles - thus it has dropped from 0.4 at 5° to 0.12 at 20° . After 50° , it remains almost constant at 0.03. As a result, the total reflected energy per day changed little as the 'Sedov' changed from its northerly to its southerly route. By graphical integration the empirical formula for the amount of reflected heat:

$$\Delta q = 33 \eta \zeta m \text{ cal/day cm}^2 \quad (1)$$

was obtained, where η is the utilisation coefficient and ζ is an empirical coefficient, changing by 20% between the northerly and southerly routes, but approximately equal to one. Fig.6, curve 1, gives Δq thus calculated for each day and, thence, curve 2 which shows the amount of heat penetrating the water.

2. Heat loss by evaporation. This was the most important heat loss factor in the regions surveyed. One of the authors (Ref.1), in experiments in the Indian Ocean, found that the amount of water evaporating/unit time/unit surface area depended on the humidity deficiency and the wind speed. It

Card 6/12

SOV-40-58-6-3/12

Oscillations in the Heat Balance of the Atlantic Ocean.

Was emphasised that in determining the former, the compressibility of water vapour at the given temperature must be found and also the humidity gradient between the surface of the sea and the measuring point. Sverdrup (Ref.4), basing his work on the theory of turbulent diffusion, confirmed a linear relationship first put forward by V. V. Shuleykin. This has been shown to give good results in many cases (Refs.2, 3, 5). Using this relationship, the results obtained in the Atlantic can be expressed by:

$$q_e = 5.85 (e_w - e_6) V_6 \text{ m.cal/day/cm}^2 \quad (2)$$

where e_w is the water vapour compressibility at the given surface temperature; e_6 is the compressibility at a height of 6 m above the surface (both expressed in millibars); and V_6 is the wind velocity in m/sec at this height. Curve 3, Fig.6, gives the results obtained with this formula. As can be seen, on some days the amount of heat lost by evaporation exceeded that gained from solar radiation. The heat lost varied from 530-100 cal/cm². The loss by evaporation remained approximately constant at all latitudes investigated and

Card 7/12

S7-43-5843-3/12

Oscillations in the Heat Balance of the Atlantic Ocean,

depended, basically, upon the wind velocity.

4. Loss in effective radiation. The next factor in importance is the effective heat loss into interplanetary space. Owing to instrumental defects, this had to be calculated from existing formulae. The one chosen was due to Angström (Ref.6):

$$q_{i_e} = \sigma T^4 (0.255 + 0.322 \times 10^{-0.069e}) \quad (3)$$

Using this, Sverdrup constructed a graph (temperature of water on the abscissa; relative humidity as ordinate) (Ref.4). He then drew curves of different effective radiations ($0.160 - 0.195 \text{ m.cal/min/cm}^2$) suitable for interpolation. These were for a clear sky. The authors employed these graphs to calculate the quantity of heat lost per cm^2 of the Atlantic each day. The results are shown in Curve 4, Fig.6. Presence of clouds was allowed for by the formula:

$$q_i = q_{i_0} (1 - C_{H^2H} - C_{M^2M} - C_{L^2L}) \quad (4)$$

Card 8/12

NOV-4-1986-3/12

Oscillations in the Heat Balance of the Atlantic Ocean.

a_H , n_M , n_L correspond to the amount of cloud in upper, middle and lower layers (in tenths). The values of C_H , C_M and C_L are given by the authors as suggested by N. I. Yegorov (Ref.5). The heat loss in effective radiation is given in Curve 5, Fig.6 - it varies between 250 cal and 82 cal/day/cm². As is expected, negative maxima on this curve correspond to positive maxima on Curve 1.

5. Loss in convective exchange between ocean and atmosphere. This plays the major part in polar seas, but in middle latitudes, as in the Atlantic, it is relatively small. Much research in this field has been carried out and the most suitable formula to use seems to be that of V. S. Samoylenko (Ref.7):

$$q_c = 3(\vartheta_w - \vartheta_6)V_6 \text{ m.cal/day/cm}^2 \quad (5)$$

This has been confirmed by the theoretical researches of P. P. Kuz'min (Ref.8) and A. G. Kolesnikov (Ref.9). Here V_6 is the wind velocity at height 6 m; ϑ_w is the temperature of the water surface and ϑ_6 is the air temperature at 6 m. The convective exchange heat loss is given in Fig.6

Card 9/12

SOV-40-50-6-3/12

Oscillations in the Heat Balance of the Atlantic Ocean.

(Curve 6) - it varies little from zero. Usually, though not always, the air temperature was lower than the water temperature and the greatest heat loss by this mechanism came about when the temperature difference was greatest and the wind velocity highest. Even so the largest value reached was 65 cal/day/cm².

6. Overall heat balance. To obtain the overall heat balance it is only necessary to add algebraically the Curves 2, 3, 5 and 6 in Fig.6. This gives Fig.7. It can be seen that the balance during the voyage was predominantly negative - positive values appearing on only 18 days (on 5 of which it did not reach +10 cal/day/cm²). The negative maxima are much bigger than the positive (largest positive = +117 cal/day/cm²; largest negative = 566 cal/day/cm²). The daily oscillations are much greater than the variations from latitude to latitude and from month to month. It is proposed that Fig.7 can be used to give the temperature distribution of water at different depths and at different times of the

Card 10/12

307-40-5346-3/12

Oscillations in the Heat Balance of the Atlantic Ocean.

year (using the formula due to A. G. Kolesnikov (Ref.10) and the results of S. V. Dobroklonskiy (Ref.11) and S. G. Boguslavskiy (Ref.12)). The authors divide their results into three headings: the first, from 14 - 29 October, with an average latitude 37°N ; the second, from 30 October to 18 November, with an average latitude 21°N ; and the last, from 19 November to 8 December, with an average latitude 34°N . The corresponding average heat losses are 116, 55 and 216 cal/day/cm². It is interesting to compare these with heat content observations made at the same time on the Gettysburg bank ($\phi = 36^{\circ}32'\text{N}$, $\lambda = 11^{\circ}30'\text{W}$). Fig.8 gives the vertical temperature distribution of the water averaged over the day - Curve 1 for October 22-23, Curve 2 for December 4-5. The second curve gives a depth 20 m deeper than the first, owing to position, but this is unimportant since Curve 1 can be extrapolated. Fig.8 indicates that, for the period October 24-December 4, the average heat loss was 156 cal/cm²/day. The mean heat loss for November was also calculated by taking the arithmetic mean of the experimental results obtained in

Card 11/12

GOV-4 1-5 4-5-3/12

Oscillations in the Heat Balance of the Atlantic Ocean.

October (the first division above) and in the third division (to December 8). This gave a value of 166 cal/cm²/day in satisfactory agreement. There are 8 figures and 12 references, of which 10 are Soviet, 1 English and 1 German.

SUBMITTED: January 21, 1953.

1. Oceanography--Atlantic Ocean
2. Atlantic Ocean--Temperature
3. Laboratory equipment--Applications

Card 12/12

GUSHCHIN, V. F. and BHUMBERG, V. A.

Skorostnoe narezanie rez'by na tokarnom stanke; pod red. A. N. Ogloblina.
(Leningrad) Leningradskoe gazetno-zhurnal'noe i khizhoe izd-vo, 1948. 34 p. diagrs.

High-speed threading on turning lathes.

DLC: TJ1222.B55

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

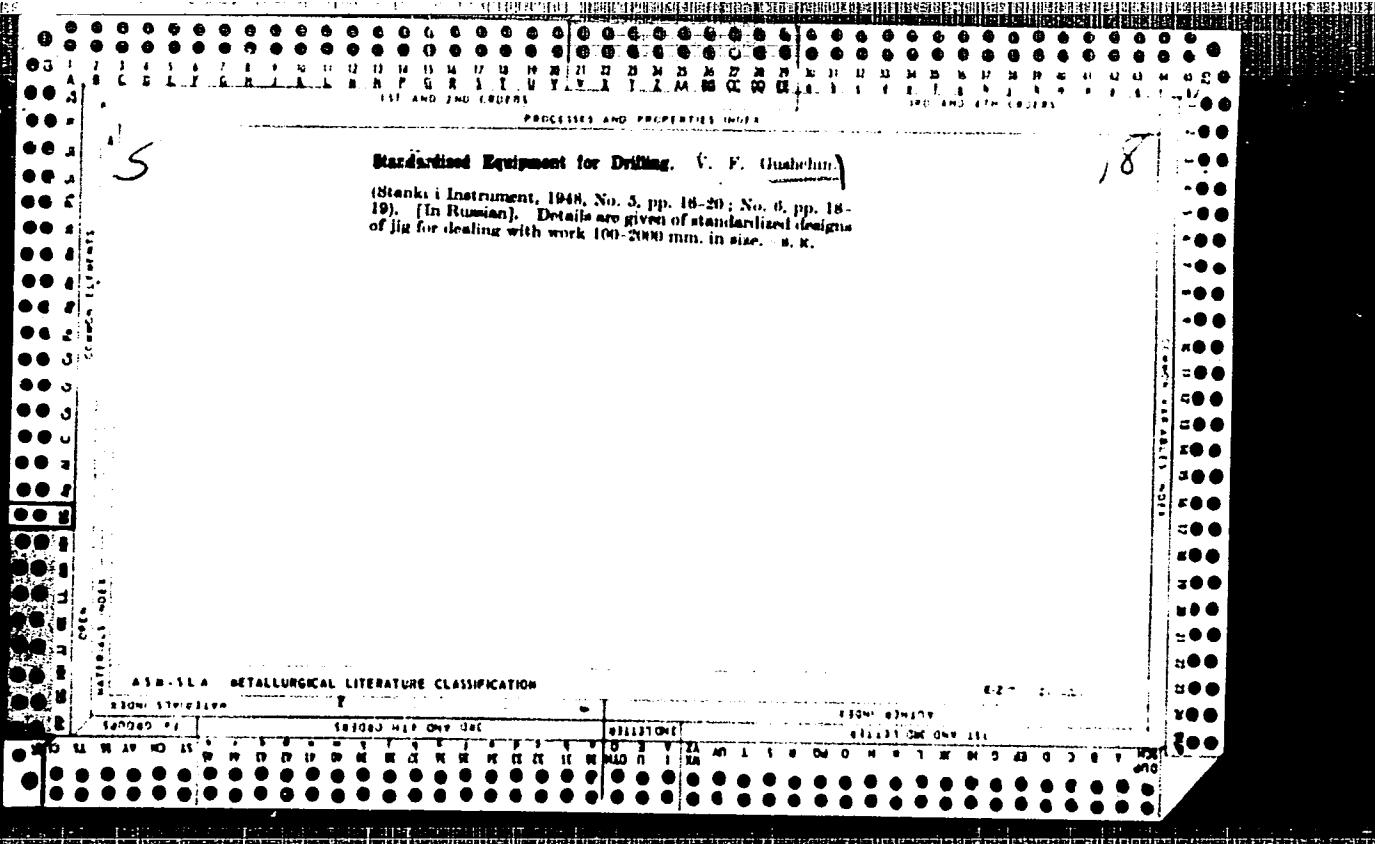
GUSCHIN, V. F. and V. A. BLIUMBERG

Skorostnoe tochenie pri obrabotke armatury; opyt raboty tokaria-skorostnika Zavoda im. Zhdanova V. I. Afanas'eva. Pod red. A. N. Ogleblina. Leningrad Leningradskoe gazetno-zhurnal'noe i knizhnoe izd-vo, 1948. 41 p. diagrs.

High-speed sharpening of fittings; practice of V. I. Afanas'ev, the expert in high-speed turning at the Zhdanov Plan.

DLC: TJ1230.B53

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.



• YUZHCHIN, V. F.
ANSTROV, M. M. & YUSHCHIN, V. F.

Prisposbeniya dlya sverlil'nykh stankov: konstruktsii i nalaadki.
Pod obshchey redaktsiey .. M. A. Anserova.
Moscow, Gosudarstvennoe Nauchno-Tekhnicheskoe Izdatel'stvo Mashino-
stroitel'noy Literatury, 1950. pp. 299, ilus., diags., tabs.; bibliog.;
23 x 15; green cloth boards.

GUSHCHIN, V.F.; YEMEL'YANOVA, Ye.V., redaktor; LEVOMEVSKAYA, L.G., tekhnicheskiy redaktor

[Utilization of the productive potentials of drilling machines]
Ispol'zovanie rezervov proizvoditel'nosti sverlil'nykh stankov.
[Leningrad] Leningradskoe gazetno-zhurnal'noe i kn-vo, 1953. 101 p.
[Microfilm] (MILRA 9:8)
(Drilling and boring machinery)

GUSHCHIN, Viktor Fedorovich; BORSHCHEVSKAYA, S.I., red.; LEVONEVSKAYA, L.G.,
tekhn.Fed.

[Increasing the productivity of turret lathes] Povyshenie proizvoditeli'nosti truda na revol'vernykh stankakh. [Leningrad] Lenizdat,
1957. 106 p. (MIRA 10:12)

(Lathes)

PHASE I BOOK EXPLOITATION

SOV/4143

Avtomatizatsiya mekhanicheskoy obrabotki v Leningradskoy promyshlennosti
(Automation of Mechanical Machining Processes in Leningrad Industry) Moscow,
Mashgiz, 1959. 358 p. Errata slip inserted. 4,000 copies printed.

General Ed.: I.M. Kucher; Reviewers: N.V. Reshetikhin, Candidate of Technical Sciences, Docent, and Ye. V. Miller, Candidate of Technical Sciences, Docent; Eds. of Publishing House: T.L. Leykina and M.A. Chfas; Tech. Ed.: O.V. Speranskaya; Managing Ed. for Literature on Machine-Building Technology (Leningrad Division, Mashgiz): Ye. P. Naumov, Engineer.

PURPOSE: This book is intended for technical personnel.

COVERAGE: The book deals with the automation of mechanical machining processes in small-lot production in Leningrad industry. The use of hydraulic copying slide rests is explained, and practical experience in the introduction of copying slide rests into leading Soviet plants is described. The improvement of such slide rests, the technical and economic effects resulting from their usage, and methods of designing master forms are discussed. New designs of hydraulic slide rests are described. Emphasis is laid upon problems of program control, especially

Card 1/5

Automation of Mechanical Machining Processes (Cont.)

SOV/4143

for the simplest control systems, and a number of the original systems are described. Automation problems involved in the group machining method are investigated. No personalities are mentioned. There are 57 references: 46 Soviet and 11 English.

TABLE OF CONTENTS:

Foreword

3

SECTION I.

HYDRAULIC COPYING SLIDE RESTS

Kucher, I.M. Use of Hydraulic Slide Rests in the Automation of
Machining Operations

5

Blyumberg, V.A. Economic Effect of the Use of Hydraulic Slide Rests
and Accuracy of Machining

33

Gushchin, V.F. Experimental Investigation of the Rigidity of Hydraulic
Slide Rests and the Methods for Correction of Master-Form Dimensions

59

Card 2/5

Automation of Mechanical Machining Processes (Cont.)	30V/4143
Zazerskiy, Ye. I. Contour Turning at the Stankostroitel'nyy zavod imeni Ya. M. Sverdlova (Machine-Tool Plant imeni Ya. M. Sverdlov)	99
Kritzev, L.M., and A.M. Kats. Experience Gained in the Use of Hydraulic Slide Rests in Lot Production	113
Barskiy, M.E., and V.N. Trutnev. V.N. Trutnev's Hydraulic Copying Slide Rest	127

SECTION II.

NUMERICAL PROGRAM CONTROL

Kucher, I.M. Use of Numerical Program Control for the Automation of Machine Tools in Small-Lot Production	139
Voronov, A.A., G.N. Sokolov, G.G. Kornitenko, and B.L. Yermilov. Numerical Computing Device for Controlling Machine Tools During Machining of Second-Order Curves	167

Card 3/5

Automation of Mechanical Machining Processes (Cont.)	SOV/4143
Razygrayev, A.M., and Z.A. Dvorin. Boring Machine Model 262PR With Numerical Control	189
Vlasov, M.G., Yu. B. Gerasimenko, and M.A. Trzhetsyak. Drilling Machine With Program Control	202
Razi, A.A. The Use of Potentiometric Functional Transducers as Setting Devices in Program Control Systems	215
Shafranskiy, P.F. Numerical Program Control With Relay-Contact Device for Setting the Magnitude of Tool Displacements	232
Pakidov, P.A. Intermittent Single-Coordinate Program Control System for Lathes	243
Razumovskiy, A.P. Experience Gained in the Use of the Spynu Program Control System on Turret Lathes [G.A. Spynu, Candidate of Technical Sciences]	254

Card 4/5

Automation of Mechanical Machining Processes (Cont.)

SOV/4143

SECTION III.

AUTOMATION IN LOT PRODUCTION BASED ON THE
GROUP MACHINING METHOD

Mitrofanov, S.P. Group Method as the Basis of Automation in
Lot Production

268

Kostygov, I.N. The New Model 1140 Single-Spindle Automatic
Turret Lathe

314

Vil'davskiy, I.M., and G.V. Borodavchenko. Mechanization of
Assembly and Automation of Machining at the Zavod imeni Lepsa
(Plant imeni Lepsa)

331

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355

AVAILABLE: Library of Congress

Card 5/5

VK/pw/mas
10-25-60

25(5)

SOV/117-59-4-2/36

AUTHORS: Barskiy, M.E., Blyumberg, V.A., Gushchin, V.F.,
and Kucher, I.M., Engineers.

TITLE: The Automation of Machining in Small-Lot Production
by the Use of Hydro-Tool Rests.

PERIODICAL: Mashinostroitel', 1959, Nr 4, pp 5-8 (USSR)

ABSTRACT: The authors treat the problems discussed at a
special conference on the matter of application of hy-
draulic tracer tool rests ("GS-1" and KST-1") for
machine tools employed in the small-lot machining of
complex staged or otherwise shaped machine parts. The
conference convened from 23 to 27 March and was or-
ganized by the Leningrad NTO MASHPROM board. Auto-
mation with the subject tool rests would greatly
raise the rate of machining (25-50% and in some cases
much more), and they are very well applicable for lathes,
but cannot be used without some additional equipment

Card 1/3

SOV/117-59-4-2/36

The Automation of Machining in Small-Lot Production by the Use
of Hydro-Tool Rests.

(Like driver centers, floating centers, pneumatic cylinders, special mandrels, etc.). Some conventional machine part designs would have to be slightly changed, and the application is not clearly commercial in all possible cases, for the time gain can be obtained on the account of auxiliary machine tool work, while the cutting process itself is not speeded up but becomes somewhat slower. The article describes a driver center (Figure 2) used at the Leningradskiy stanko-stroitel'nyy zavod im. Sverdlova (Leningrad Machine Tool Plant imeni Sverdlov). the tracers in use (Figure 4); the conclusions of the Leningradskiy inzhenerno-ekonomicheskiy institut, "LIEI", (Leningrad Engineering-Economic Institute) made after a study of the commerciability of the tool rests, and recommendations

Card 2/3

SOV/117-59-4-2/36

The Automation of Machining in Small-Lot Production by the Use
of Hydro-Tool Rests.

concerning details of the machining process with the
use of the hydro-tool rests. Design changes needed
for the application of the hydro-tool rests will be
described in the next issue of this periodical. There
are 5 diagrams, 2 graphs, 1 table and 1 Soviet
reference.

Card 3/3

28(1)
25(7)

SOV/117-59-5-4/30

AUTHORS: Barskiy, M.E., Blyumberg, V.A., Gushchin, V.F., and Kucher, I. M., Engineers

TITLE: The Automation of Machining in Small-Scale Production by Using Hydraulic Slide-Rests

PERIODICAL: Mashinostroitel', 1959, Nr 5, pp 7-12 (USSR)

ABSTRACT: This is the second part of an article (see the beginning in "Mashinostroitel'", 1959, Nr 4). This chapter lists improvements of hydraulic slide-rests, introduced at the Leningrad-skiy zavod "Bol'shevik" (Leningrad "Bol'shevik" Plant), the Leningradskiy zavod imeni Kirova (Leningrad Plant imeni Kirov) and others. The following are listed: an attachment for multi-pass operations with the "GS-1" slide-rest (Figure 1); a similar attachment for the "KST-1" slide-rest (Figure 2); stops, limiting the slide-rest travel from left to right, and on the copying motion guides toward the centers axis (Figures 3, 4). These stops eliminate time waste and prevent the breakage of cutting tools. It is mentioned that the "GS-1" gives only a

Card 1/4

30V/117-59-5-4/30

The Automation of Machining in Small-Scale Production by Using Hydraulic Slide-Rests

low-diameter accuracy of work (frequently even below the 5th "OST" accuracy class), the reason being the changing temperature of the hydraulic oil during the first 2-3 hours of operation or after stoppages. But the "KST-1" and "UP-240" achieve an accuracy of "3 a" class in a stable work process. The linear dimensions are not affected by oil temperature changes. The Leningradskiy inzhenerno-ekonomicheskiy institut (Leningrad Institute of Economic Engineering) stated that a static error in the follow-up system causes a systematical error of 0.03 to 0.1 mm in the linear dimensions of all hydraulic slide-rests. The causes of the low rigidity of the "GS-1" were investigated with the use of indicators placed as shown in Figure 6. The results are specified. Detailed information is given on a new hydraulic slide-rest type "GIZ-1", designed by V.F. Gushchin and built at the Izhorskij mashinostroitel'nyy zavod (Izhorskij Machine Building Plant), for use on the "IK62" lathe (Figure 7). The outstanding features of the "GIZ-1" are given. 1) It is attached directly to the cross-slide, on

Card 2/4

SOV/117-59-5-4/30

The Automation of Machining in Small-Scale Production by Using Hydraulic Slide-Rests

the rear; it is small and its center of gravity is so placed that the slide cannot shift. 2) It may be used with a circular as well as with a flat tracer and the work edge of the feeler is approximately at the center of the possible swing of the slide, so that no shifts of the follow-up displacements are possible if the slide shifts. 3) The hydraulic slide is a massive round bar and the cutting tool is attached to its body. The bar is at the same time a hydraulic cylinder, which displaces in relation to a fixed piston. It is provided with a separate aperture for attaching boring bars. 4) The hydraulic system is exactly the same as in the "KST-1" and "GS-1" hydraulic slide-rests. At the Leningrad "Bcil'-shevik" Plant, the lathe operator V.N. Trutnev developed a hydraulic slide-rest for the "LA62" lathe. The particular feature of this slide-rest is the absence of a separate motor for the drive of the hydraulic pump. It is being used for machining external complex surfaces, as well as internal complex surfaces (stepped or otherwise shaped) (Figures 8,9).

Card 3/4

SOV/117-59-5-4/30

The Automation of Machining in Small-Scale Production by Using Hydraulic Slide-Rests.

Recommendations are included for designing hydraulic slide-rests. There are 10 sets of diagrams, 1 table, and 1 Soviet reference.

Card 4/4

GUSHCHIN, V. F.

Review of "Automation of technological processes in the
manufacture of machines" by I.I.Shapovalov, A.IA.Bel'chenko.
Mashinostroitel' no.3:46 Mr '60. (MIRA 13:6)
(Automation) (Machinery industry) (Bel'chenko, A.IA.)
(Shapovalov, I.I.)

GUSHCHIN, V. F. Cand Tech Sci -- "Study of ~~the~~ possibilities of ~~raising~~ increasing the precision of ~~lath~~ operations performed with the use of ~~hydraulic~~ copying supports." Len, 1960 (Len Polytechnic Inst im M. I. Kalinin. Chair of Technology of Machine Building). (KL, l-61, 193)

-190-

GUSHCHIN, V.F.

A useful book ("Reconditioning machine-tool parts" by A.S.Lebedev).
Mashinostroitel' no.1:47 Ja '61. (MIRA 14:3)
(Machine tools--Maintenance and repair)
(Lebedev,A.S.)

GLAZOV, G.A., inzh., red.; GUSHCHIN, V.F., kand. tekhn. nauk, red.;
KUREPINA, G.N., red. izd-va; CHFAS, M.A., red. izd-va;
BORDINA, A.A., tekhn. red.

[Overall mechanization and automation of the serial production
of machinery] Kompleksnaia mekhanizatsiia i avtomatzatsiia v
seriinom mashinostroenii. Moskva, Mashgiz, 1962. 174 p.
(MIR: 15:11)

(Machinery industry) (Automation)

S/123/62/000/003/017/018
A004/A101

AUTHOR: Gushchin, V. F.

TITLE: Hydraulic copying system with jet pipe

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 3, 1962, 83, abstract
3B505 (V sb. "Avtomatiz. metallorezh. stankov". Moscow-Leningrad,
Mashgiz, 1961, 116 - 126)

TEXT: Oil gets into jet pipe 4 (see Figure), mounted on hinge 1, from the pump at pressure of 60 kg/cm². Opposite to the nozzle aperture of the jet pipe, 2 cylindrical channels are located, which are separated by a keen edge. In the equilibrium state (II) of the copying device, when the hole of the jet pipe is located opposite to the keen edge 10 separating both channels, pressures are produced in hollows 8 and 9 of the hydraulic cylinder, which are inversely proportional to the cylinder effective areas. At the slightest deviation of pipe 4, caused by a displacement of stylus 2 under the effect of tracer 3, a pressure drop of the pressure fluid is originating in hollows 8 and 9. This causes the displacement of hydraulic slides 7 with tool 6 relative to the stationary piston 5 (I - retraction of slides, III - approach of slides). The author presents a

Card 1/2

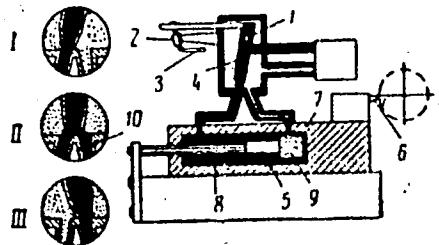
Hydraulic copying system with jet pipe

S/123/62/000/003/017/018
A004/A101

calculation of the hydraulic system with jet pipe. It is pointed out that owing to the high vibration resistance of jet systems, copying devices can be designed operating with high fluid pressures in the range of 60 - 80 kg/cm². There are 7 figures.

M. Degtyareva

Figure.



[Abstracter's note: Complete translation]

Card 2/2

GUSHCHIN, V.F.

Precision of machining on lathes in using hydraulic copying rests.
Stan.i instr. 32 no.12:17-19 D '61. (MIRA 14:12)
(Lathes--Numerical control)

SERGEYEV, Mikhail Afanas'yevich; GUSHCHIN, V.F., inzh., retsenzent;
KHARCHENKO, K.S., red.; DENINA, I.A., red. izd-vs;
SHCHETININA, L.V., tekhn. red.

[Increasing labor productivity in fitting and assembling
work] Povyshenie proizvoditel'nosti truda pri slesarnykh i
sborochnykh rabotakh. Izd.2., perer. i dop. Moskva, Mash-
giz, 1963. 294 p. (MIRA 16:7)
(Machine-shop practice--Production methods)

GUSHCHIN, V.F.

Simplified method of calculating the heights of wind waves
on shallow bodies of water. Sbor. rab. Ryb. gidromet. obser.
no. 2:20-24 ' 65. (MIRA 19:1)

Some characteristics of the development and decay of the
heights of wind waves on shallow bodies of water. Ibid.:
25-32.

GUSHCHIN, V.G.

My suggestions. Put' i put.khoz. 5 no.8:33 Ag '61. (MIMA 14:10)

1. Mashinist motovoza-elektrostantsii PMS-1, st. Tolkay,
Kuybyshevskoy dorogi.
(Railroads---Equipment and supplies)

GUSCHIN, V.I.; RYAZANTSEVA, L.I., red. izd-va; MIKHEYEVA, A.A.,
tekhn. red.; TARAKHOVA, K.Ye., tekhn. red.

[Handbook on accident prevention for the conveyor operator]
Pamiatka po tekhnike bezopasnosti dlja mashinista transpor-
tera. Moskva, Gosstroizdat, 1962. 13 p. (MIRA 16:2)
(Conveying machinery)
(Building--Safety measures)

L 36363-66

ACC NR: AP6013176

(A)

SOURCE CODE: UR/0256/66/000/004/0079/0079

AUTHOR: Gushchin, V. I. (Lieutenant colonel)

17

ORG: none

B

TITLE: Drying gas pipeline connections of the DDN-1M device

SOURCE: Vestnik protivovozdushnoy oborony, no. 4, 1966, 79

TOPIC TAGS: *moisture measurement*, humidity control, measuring apparatus/DDN 1M moisture meter

ABSTRACT: Humidity control of compressed air is carried out with the DDN-1M device, which requires thorough preparation. Experience has demonstrated that dry air from the compressor station can be used for drying gas pipelines of the DDN-1M device. The dry air is heated from 300 to 400°C at the compressor station, while the dry air to be

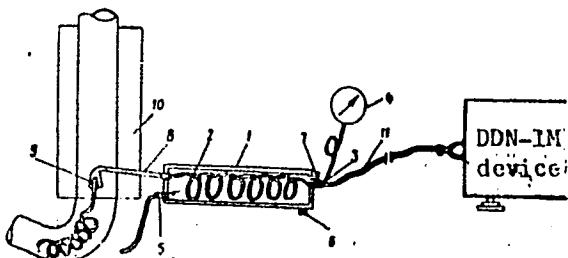


Fig. 1. Dry-air temperature reducer

1 - Double-wall heat exchanger;
2 - coil; 3 - connecting pipe;
4 - thermometer; 5 - connecting pipe;
6 - closing plug; 7 - pipe;
8 and 9 - pipe with conic connection;
10 - regenerator cabinet;
11 - insulated pipe.

L 36363-66

ACC NR: AP6013176

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used for drying gas connbctions of the DDN-LM device, must be 100 to 120C. An apparatus has been developed (see Fig. 1) for reducing the dry-air temperature taken from the compressor station to the required 120C. Orig. art. has: 1 figure.

[NT]

SUB CODE: 14/ SUBM DATE: none
13/

rec
Card 2/2

GUSHCHIN, Vitaliy Ivanovich; PERETRUKHIN, V.I., red.; PROTANSKAYA,
I.V., red.izd-va; BAGURINA, A.M., tekhn. red.

[Work with explosives in the lumber industry] Vzryvnye
raboty v lesnoi promyshlennosti. Moskva, Goslesbumiz-
dat, 1963. 170 p. (MIRA 17:2)

GUSHCHIN, Vitaliy Ivanovich; DOKUCHAYEV, M.M., inzh., retsenzent;
LYUBIMOV, N.G., otv. red.; LAVRENT'YEVA, L.G., tekhn. red.

[Handbook for the blaster in open-pit mines] Spravochnik
vzryvnika na kar'ere. Moskva, Gosgortekhizdat, 1963.
202 p. (MIRA 16.6)
(Blasting)

GUSHEIN, Vitaliy Ivanovich; ZVORYKINA, L.N., red.

[Safety manual for operators of equipment for churn drilling] Pamiatka po tekhnike bezopasnosti dlia mashinista stANKA udarno-kanatnogo burenija. Moskva, Stroiizdat, 1964.
28 p. (MIRA 17:6)

BARANNIKOV, M.G.; GVOZDEV, A.A.; GUSHCHIN, V.H.; DAVYDOV, S.S.; DUDGOROV,
N.P.; KOLENKOV, V.A.; LOVEYKO, I.I.; SVETLICHNYY, V.I.; SKROMTAYEV,
B.G.; KUCHERENKO, V.A., redaktor; BABSKOV, I.M., redaktor;
RUBAHENKO, B.P., redaktor; GORSHKOV, A.P., redaktor izdatel'stva;
STRELETSKIY, I.A., tekhnicheskiy redaktor

[Construction practices abroad; in countries of Western Europe. Based
on material gathered by a delegation of Soviet building specialists]
Opyt stroitel'stva za rubezhom; v stranakh Zapadnoi Evropy. Po
materialam otchetov delegatsii sovetskikh spetsialistov-stroitelei.
Moskva, Gos. Iz-vo lit-ry po stroit. i arkhitekturo, 1956. 365 p.
(Europe, Western--Building) (MIRA 10:1)

GUSHCHIN, V.M.

~~Basic tasks of the Ministry of the Construction Industry of the
U.S.S.R. in 1957. Nov.tekh.1 pered.op.v stroi.19 no.1:1-4 Ja '57.
(MLRA 10:2)~~

1. Zamestitel' Ministra stroitel'stva.
(Construction industry)

KUREK, N.M., red.; SHERBAKOV, S.N., red.; ARSEN'YEV, L.B., red.; BOBORYKIN, Ye.P., red.; VISHNEVSKIY, A.V., red.; GORCHAKOV, A.V., red. GUSHCHIN, V.M., red.; DRUZHININ, B.N., red.; LEPILIN, G.M., red.; PEREL'SHTEYN, N.L., red.; TESLYA-TESLENKO, V.P., red.; AGRANATOV, Yu.O., tekhn.red.

[Precast reinforced concrete members; planning and using] Sbornye zhelezobetonnye konstruktsii; opyt proektirovaniia i primeneniia. Moskva, TSentr. biuro tekhn.inform., 1958. 422 p. (MORA 11:5)

1. Russia (1917- R.S.F.S.R.) Ministerstvo stroitel'stva.
Tekhnicheskoye upravleniye.
(Precast concrete construction)

GUSHCHIN, V.N., veterinarnyy vrach; MATVEYEV, A.N., veterinarnyy vrach;
KOSTYUCHENKO, S.P., veterinarnyy vrach.

Effective method of treating mastitis in cows. Veterinariia 41 no.3/72
Mr 164.
(MIRA 18:1)

1. Podsechnoye khozyaystvo "Kraskovo", Moskovskoy oblasti.

GUSHCHIN, V.O. [Hushchyn, V.O.]; SHAPOVALOV, I.I., red. [deceased]

[Socialist Lvov Province in 1956; a bibliographical index]
Sotsialistichna L'vivshchyna 1956 r.; bibliografichnyi pokazhchik
literatury. L'viv, 1958. 319 p. (MIRA 13:6)

1. Akademiya nauk USSR, Kiyev. L'vovskaya biblioteka. Otdel
bibliografii.
(Bibliography--Lvov Province--Economic conditions)

25 (5)
AUTHORS:

TITLE:

PERIODICAL:

ABSTRACT:

Gushchin, V. P., Kel'tsov, N. V.,
Khalif, A. L.
Sound Indicator for the Stream of an Adsorbent, Catalyst, or
Another Solid Packing in a Column
Zavodskaya laboratoriya, 1959, Vol 25, Nr 9 p 1140 (USSR)
SOV/32-25-9-46/53
Larger plants usually use a screw conveyor connected with a
signal lamp as flowmeter for dispersive materials. Such a
device, however, is impractical for the work of smaller plants
or plants operating with high pressure. It was reported in
1956 (Ref 1) that Hungarian engineers, in studying the separa-
tion of acetylene by the adsorption method, had used sound
indicators (1) for checking the adsorption column. At the same time, the device described here was
solid packing in the column, a tuning fork serving as the
main element. The solid packing is recommended for the adsorption column. At the same time, the device described here was
developed and is recommended for the adsorption column. The device was tested in the VNIGAZ testing
plant which was designed for the purification of hydrogen in a
mobile layer of active carbon (at 50 atm). A scheme (Fig) shows
that the device is attached to the middle of the column. The

ASSOCIATION,

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Card 2/2

issledovatel'skiy institut prirodnogo
gas lift. There are 1 figure and
Scientific Research Institute for Natural Gas)

FRIAUF, V.A.; GURDZHIYANTS, E.M.; GUSHCHINA, V.P.

Bacteriological diagnosis of whooping cough using casein-carbon agar and some biological properties of local *Hemophilus pertussis* strains. Zdrav.Turk. 6 no.6:7-11 N-D '62. (MIRA 16:3)

1. Iz Ashkhabadskogo instituta epidemiologii i gigiyeny (dir. - dotsent Ye.S. Popova) i kafedry mikrobiologii (zav. - prof. Ye.Ya. Gleyberman) Turkmenetskogo gosudarstvennogo meditsinskogo instituta.

(HEMOPHILUS)

(WHOOPING COUGH)

GLEYBERMAN, Ye.Ya.; BOGDANOVICH, M.I.; GUSHCHINA, V.P.

Measures for decreasing diphtherial incidence in Turkmenistan.
Zdrav.Turk. 2 no.6:35-37 N-D '58. (MIRA 16:3)

1. Iz instituta epidemiologii i gigiyeny (dir. - Yu.V. Skavinskiy,
nauchnyy rukovoditel' - dotsent Ye.Ya. Gleyberman) Ministerstva
zdravookhraneniya Turkmenskoy SSR.
(TURKMENISTAN—DIPHTHERIA)

GUSHCHIN, V.V.

Technological processes in manufacturing printed plates. Pri-
borostroenie no.2:24-25 F '64.
(MIRA 17:3)

BARON, L.I.; GUSHCHIN, V.V.; LESHTAYEV, V.V.

Quantitative evaluation of the effective crumbling of ore in
a long chute at the Yukspor mine. Izv. Kar. i Kol'. fil. AN SSSR
no.1:146-150 '59.
(MIRA 12:9)

1. Institut gornogo dela AN SSSR i kombinat "Apatit".
(Ore dressing)

GUSHCHIN, V.V., gornyy inzh.; LITVINOV, I.D., gornyy inzh.; MITROFANOV,
I.K., gornyy inzh.; NOVOZHILOV, M.G., gornyy inzh.; POLYAKOV, V.G.,
gornyy inzh.; SKVORTSOV, P.V., gornyy inzh.

"Mining handbook," vol. 1: Strip mining. Reviewed by V.V.Gushchin
and others. Gor.zhur. no.4:76-77 Ap '61. (MIRA 14:4)
(Strip mining--Handbooks)

GREBENNIKOV, D.A., gornyy inzh.; ZYKOV, V.A.; GUSHCHIN, V.V.; DEMIDENKO, I.F.; RODIONOV, G.V., prof., doktor tekhn.nauk

Discussion of IA. B. Kal'nitskii and S.P. Vasil'evskii's article "Problems in the automation of stoping equipment in the mining industry." Gor. zhur. no.10:59-64 O '61. (MIRA 15:2)

1. Glavnnyy mekhanik kombinata "Apatit" (for Zykov). 2. Glavnnyy inzh. kombinata "Apatit" (for Gushchin). 3. Upravlyayushchiy rudnikom Odra-Bash Kuznetskogo metallurgicheskogo kombinata (for Demidenko). 4. Institut gornogo dela Sibirskogo otdeleniya AN SSSR (for Rodionov).

(Mining machinery)

GUSHCHIN, V.V.

Improvement of mining systems in "Apatit" Combine mines. Nauch.
trudy Mosk. inst. radioelek. i gor. elektromekh. no.46:199-212 '62.
(MIRA 17:1)

GUSHCHEV, V.V.; YELIN, S.N.; STEKHOVSKIY, A.V.; ABRAMOV, V.F., kand.
tekhn.nauk

tekhn.nauk
New technical methods and equipment for underground mining in
apatite mines. Gor.zhur. no.1:35-40 Ja '63. (MIRA 16:1)
A. N. Vulin, Stekhnovskiy).

apatite mines. Certain
 1. Kombinat "Apatit" (for Gushchin, Yelin, Stekhnovskiy).
 2. Gosudarstvennyy institut gorno-khimicheskogo syr'ya (for
 Abramov). (Apatite) (Mining engineering)

BUSYREV, Vladislav Mikhaylovich, kand. tekhn. nauk; GUSEV,
Vladimir Vasil'yevich; ZURKOV, P.E., doktor tekhn. Nauk,
prof., otv. red.

[Efficiency of mining apatite and nepheline ores by the
induced level caving system] Effektivnost' razrabotki
apatito-nefelinovykh rud sistemoi etazhnoego prinuditel'-
nogo obrusheniia. Moskva, Izd-vo "Nauka," 1964. 97 p.
(MIRA 17:8)

ABRAMOV, V.F.; FAYBYSENKO, D.I.; GUSHCHIN, V.V.

Ore breaking by horizontal, fan-pattern holes at apatite mines.
Gor. zhur. no.5. 9-21 My '65. (MIRA 18:5)

1. Gosudarstvennyy institut gornokhimicheskogo syr'ya, g. Lyubertsy
(for Abramov, Faybyshenko). 2. Kombinat "Apatit" (for Gushchin).

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CIA-RDP86-00513R000617620008-1

GUSHCHIN, V.V.

THE HISTORY OF THE RUSSIAN COMMUNIST PARTY
Expressing the systems of actions and motives of the party
and its leaders. 1917-1921

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R000617620008-1"

L 24724-66 EWT(m)/EWP(j) IJP(c) RM

ACC NR: AP6009507

(4)

SOURCE CODE: UR/0413/66/000/005/0011/0011

AUTHOR: Kiya-Oglu, N. V.; Nepalkov, N. A.; Rotenberg, I. P.; Bondarenko, S. G.;
Gushchin, V. Ye.; Modina, Z. V.; Bunina, Ye. D.; Zamyatin, K. K.

ORG: none

TITLE: Method of preparing foamed pavinal. Class 8, No. 179269

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 5, 1966, 11

TOPIC TAGS: pavinal, polyvinylchloride coating, pore former

ABSTRACT: An Author Certificate has been issued describing a method for preparing foamed pavinal by applying polivinylchloride paste containing plasticizers, stabilizers, pigments, and the pore former ChKhZ21 to a cloth base. To speed up the process, the paste applied to the cloth is heated to 180-200C. Subsequently, the coating obtained can be printed. [LD]

SUB CODE: 11/ SUBM DATE: 01Aug62/

UDC: 678.026.3

743.22:677.865.2

Card 1/1 ✓

GUSHCHIN, Ye., inzh.; SATS, M., inzh.

Unit for making clay slip. Stroitel' no.12:20-21 D '59.
(Clay) (MIRA 13:3)

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617620008-1

GUSHCHIN, Ye. P.

USSR

"Callets for Dies." Stenki I Instrument Vol. 15,
Nos. 7-8, 1944

BR 52059019

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617620008-1"

GUSHCHIN, Ye.P.; SNEGIREV, A.P.

Shielding laboratories from radiation. Zav.lav.21 no.8.1002-1003 '55

1. Moskovskiy gosudarstvennyy universitet
(Shielding (Radiation))

(MIRA 8:11)

Kushnarev, Ye. G.

VERSHOVSEV, E.V.; KHAN, B.Kh.; GUS'KOV, K.M.; GUSHCHIN, Ts.P.; MOROZENSKIY,
A.I.

Deoxidation and alloying of steel by solid ferroalloys in laddles.
Mnul. tekhn.-ekon. inform. no.1:12-16 '77. (MIRA 11:4)
(Steel--Metallurgy)

GUSHCHIN, Yu.

Device using radioactive isotopes for measuring the expenditure of
liquid. V pom. radioliub. no. 11-13-50 16.7 (MTRA 15:6)
(Liquids—Measurement)
(Radioactive substances—Industrial applications)
(Measuring instruments)

SHIPILOV, V.A.; CHUBOV, P.G.; SERDECHKIN, Yu.I.; GUSHCHIK, Yu.A.

Inductive controller and its use in automatic control systems.
(MIRA 17:4)
Gor.schir. no.4:63-65 Ap '64.

1. Vsesoyuznyy nauchno-issledovatel'skiy gornometallurgicheskiy
institut tsvetnykh metallov, Ust-Kamenogorsk.

PETCHKO, M.A., kand. tekhn. nauk; GUSHCHIN, Yu.P., inzh.; KHMELEN'NIKER, V.L.,
inzh.

Experience in the operation of the equipment of a 300 Mw. block with
superhigh steam parameters. Elek. sta. 36 no.6:15-19 Je '65.
(MIRA 18:7)

GUSHCHIN, Yu.S.

Hydromechanical transmission of heavy-duty dump trucks.
Avt. prom. 30 no. 3:29-33 Mr '64. (MIRA 17:6)

1. Belorusskiy avtomobil'nyy zavod.

(A) L 8586-66 EWT(m)/T DJ

ACC NR: AP5021518

SOURCE CODE: UR/0113/05/000/008/0025/0028

39
B

AUTHOR: Gushchin, Yu. S.

ORG: Minsk Tractor Plant (Minskiy traktornyj zavod)

TITLE: Investigation of the process of disconnection of rotating friction clutches in hydromechanical transmissions

SOURCE: Avtomobil'naya promyshlennost' no. 8, 1965, 25-28

TOPIC TAGS: motor vehicle, clutch, mechanical power transmission device, fluid flow, vehicle power transmission system

ABSTRACT: The author analyzes theoretically and experimentally the operation of a spinning friction release clutch with peripheral oil removal. The time of oil/butflow from the friction booster and the variation of additional pressure acting on the piston by the outgoing oil is determined as a function of the flow time. The experimental testing was carried out on a stand which is described in the article. The theoretical and experimental curves are in very good agreement. The results presented may be useful in the determination of clutch slipping during the disconnection process. Orig. art. has: 26 formulas, 4 figures, and 2 tables.

SUB CODE: 13, 20 / SUBM DATE: none / ORIG REF: 002

UDC: 629.11.013.33

jw

Card 1/1

GUSHCHIN, Yu.V.

103-9-5/9

AUTHORS

Gushchin, Yu.V., Meltsier, L.V., Tolokonnikov, M.I.,
Shumilovskiy, N.N. (Moscow)

TITLE

The Application of Radioactive Radiation in Automatic Control Devices.
(Primeneniye radioaktivnykh izlucheniy v ustroystvakh avtomaticheskogo kontrolya.-Russian)
Avtomatika i Telemekhanika, 1957, Vol 18, Nr 9, pp 814-840 (U.S.S.R.)

PERIODICAL

ABSTRACT

Material for a far-reaching utilization of nuclear radiation in automatic control devices in the USSR is dealt with. A survey is given and also an analysis of the typical methods of using these devices. First, the basic characteristics of α - β - and γ -radiation are investigated and described. Next, the most frequently used reception devices for the transformation of radioactive radiation energy into electric energy, such as the ionization chamber, the Geiger-Mueller counter, and scintillating counters are described. There follows a description of the automatic control of the thickness and the weight of working materials, medium density, etc., on which occasion several compensation systems are described and various control devices in the coal-, textile-, paper-, fur-, milk-, leather-, and other industries are enumerated. The methods of controlling and regulating gas- and liquid consumption, the devices for the automatic recording of the presence of admixtures in the gas, devices for the automatic control and regulation of gas pressure, relay systems with the application of contact-less radioactive relays, and the further development of

Card 1/2

GUSHCHIN Yu. B.

4, Leningrad, U.S.S.R., Chernaya Sloboda, po 140117 Novosibirsk
Soviet Socialist Republics, and Academy of Sciences.

Editorial Board of Sci. V.I. Dzhurkin, A.G. Gerasimov (Rasp. Ed.), N.I. Shumilovskiy (Copyr. Rep. Ed.), Yu. S. Chukavkin (Deputy Head), L.K. Tatischev (Ed.), V.I. Vorobov, S.P. Karapov, L.I. Petrenko and M.G. Zelvininskaya (Secretary).

Ed. of Publishing House: P.M. Balyanis; Tech. Ed.: T.P. Polenova.

Foreword. This book is intended for specialists in the field of machine and instrument manufacture who use radioactive isotopes in the study of materials and processes.

COVERAGE: This collection of papers covers a very wide field of the utilization of tracer methods in industrial research and control techniques. The topic of this volume is the use of radioisotopes in the machine- and instrument-manufacturing industry. The individual papers discuss the applications of radioisotope techniques in the study of metals and alloys, processes of melting and lubrication, metal cutting, engine performance, and defects in metals. Several papers are devoted to the use of radioisotopes in the automation of industrial processes, recording and measuring devices, quality control, flowmeters, level gauge, safety devices, radiation counters, etc. These papers represent contributions of various Soviet institutes and laboratories. They were published in Transactions of the All-Union Conference on the Use of Radioactive and Stable Isotopes and Radiation in the National Economy and Science, April 4-12, 1957. No personalities are mentioned. References are given at the end of most of the papers.

Auzan, Ye. A.; V.E. Banashev, D.N. Kuzne, I.M. Takarov, A.B. Tchernyshov, P.F. Chuplinich, L.A. Sennik, and V.V. Semashko. Kovalevsky (Institute Fizika i Labirint SSSR, Academy of Sciences, professor, 18 Drzina, "Vnes", "Kompressor", and "Drelnars" Plants). Automation and Control Equipment With Radioactive Relays 259

Sergein, V.O. (Vsesoyuznyi nauchno-issledovatel'skiy zavod po radioaktivnym priodez). Gamma Ray With Crystal Triodes 264

El'iasberg, E.S. Evaluation of the Minimum Necessary Charge of Counters in a Gamma Beam 266

Shumilovskiy, N.M., Yu.V. Oushchishin, and M.I. Tolokonnikov. Tsvetnoye radioaktivnoye tehnologicheskoye oborudovaniye. AN SSSR - Institute of Traction and Machine Mechanics, Academy of Sciences, USSR). Use of Radioactive Isotopes for the Automatic Control of the Flow of Liquids 367

Kryzhanovskiy, V.V., T.I. Savchenko, and V.A. Yermakovich. Nauchno-issledovatel'skiy zavod po radioaktivnym stekloprokatam, Akademiia nauk Latvijas SSSR - Leningrad Steel Rolling Mill. Use of Short-lived Isotopes in the Control of the Process of Steel Strip Manufacture 372

Shumilovskiy, N.M., and L.V. Mal'tseva (Institut avtomatiki i radioelektroniki AN SSSR - Institute of Automation and Telemechanics, Academy of Sciences, USSR). Use of Radioactive Radiations in the Noncontact Control of the Volume and Velocity of a Stream of Gas 376

Riso, Ya.Yu., and D.M. Zay. Use of Alpha Emitters for the Measurement of Gas Density 280

Jordan, G.U., K.G. Purman, and T.D. Neiman (Nauchno-issledovatel'skiy institut radioaktivnogo prirodnogo radioelementa - Scientific Research Institute of Radioactive Natural Elements). Equipment for the Automatic Control of the Flow by Means of Gas Radiation 286

Polonik, L.A., Yu. Mal'tseva, and M.I. Pan'yushov (Nauchno-issledovatel'skiy in-tul'nyi shchitnoy radioaktivnosti - Central Scientific Research Institute of the Silk Industry). Use of Radioactive Isotopes for the Dissipation of Electrostatic Charges in the Silk Industry 289

66217
SOV/146-59-1-20/21

21(8), 28(1) 16.9500
AUTHORS: Shumilovskiy, N.N., Doctor of Technical Sciences, Gushchin, Yu.V.,
Engineer, and Tolokonnikov, M.I., Engineer

TITLE: The Application of Radioactive Radiation For the Automatic Control
of a Liquid Flow in Closed Pipelines

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Priborostroyeniye, 1959,
Nr 1, pp 132-138 (USSR)

ABSTRACT: At the Institut avtomatiki i telemekhaniki AN SSSR (Institute of
Automation and Remote Controls of the AS USSR) a flowmeter was
developed which is based on the mechanical modulation of radio-
active radiation. The principle of this device is explained in
fig.1. A multi-blade impeller is placed into the liquid flow to
be measured. Radioactive inserts are installed in one or several
of its blades, but they cannot contact the liquid to be measured.
Various gamma sources may be used: Co-60, Sn¹¹³⁻¹²³, Cs¹³⁷, Eu¹⁵⁴,
etc. A lead screen is installed between the Geiger-Miller counter
and the impeller, thus the intensity of the radiation varies from
a minimum to an established maximum. A STS-1 halogen counter is ✓

Card 1/3

66217
SOV/146-59-1-20/21

The Application of Radioactive Radiation For the Automatic Control of a Liquid Flow in Closed Pipelines

used with an operating voltage of 400 volts, which converts the radiation pulses into electrical pulses. The electrical pulses are fed by cables to the input of an electronic measuring instrument, shown in circuit diagram, fig.2. This measuring instrument has two ranges: 0-5 and 3-30 cps. A photograph of the measuring device is shown in fig.3. An experimental model of this flowmeter was tested at VNII stekla (VNII for Glass), at the Moskovskiy institut inzhenerov gorodskogo stroitel'stva Mossoveta (Moscow Institute of City Construction Engineers of Mosssovet) and at Kombinat Nr 513 Ministerstva tekstil'noy promyshlennosti (Combine Nr 513 of the Ministry of the Textile Industry). At VNII stekla, tests were conducted with this device on a mazut flowmeter test stand. The results showed a maximum error of $\pm 1\%$. The tests were conducted at flows ranging from 378 to 900 liters/hour. In the future, radioactive flowmeters may find a wide-spread application. There are 1 photograph, 1 circuit diagram, 1 diagram, 2 graphs and 3 Soviet references.

Card 2/3

66217

SOV/146-59-1-20/21

The Application of Radioactive Radiation For the Automatic Control of a Liquid Flow in Closed Pipelines

ASSOCIATION: Moskovskiy ordena Lenina energeticheskiy institut (Moscow - Lenin Order - Institute of Power Engineering)

SUBMITTED: October 1, 1958

Card 3/3

S/089/69/010/001/015/020
B006/B063

26.2190
21.7100 (1422,1138,1496)
AUTHORS: Shumilovskiy, N. N., Gushchin, Yu. V.

TITLE: Instrument for Measurement and Automatic Control of the
Flow Rate of a Liquid by Radioactive Radiation

PERIODICAL: Atomnaya energiya, 1960, Vol. 10, No. 1, pp. 93-94

TEXT: A method worked out at the Institut avtomatika i telemekhanika
AN SSSR (Institute of Automation and Telemechanics AS USSR) for the
measurement of the rate of flow of liquids is based on the use of radio-
isotopes and on the effects of the mechanical modulation of radioactive
radiation. A multiblade wheel in the liquid current serves as a sensitive
element. A radioisotope is pressed onto one or several blades in such a
manner as to exclude direct contact with the liquid. The external side of
the tube wall features a lead collimator which absorbs part of the rays
emitted by the isotope (Co^{60}); this absorption takes place along a
partial section of the way traveled by the source on the blade during its
rotation in the liquid current. A receiver behind a screen is connected to

Card 1/3

Instrument for Measurement and Automatic
Control of the Flow Rate of a Liquid by
Radioactive Radiation

S/089/60/010/001/015/020
B006/B063

the measuring instrument by a cable. Cs¹³⁷, Eu¹⁵⁴, Sn¹¹³, and similar isotopes may be used instead of Co⁶⁰. The beam of radioactive radiation modulated by the wheel rotation hits the receiver (counter) which conveys the absorbed energy to the measuring instrument (e.g., an electronic recorder) in the form of electric wave packets. A flow-meter operating in this manner was tested at the Vsesoyuznyy nauchno-issledovatel'skiy institut stekla (All-Union Scientific Research Institute of Glass) by the flow measurement on fuel oil (masut). The error in the total flow determination is about ±5%, and the maximum error of instantaneous measurements is about ±1.5%. The Institute of Automation and Telemechanics AS USSR in cooperation with the Institut fiziki AN Latviyskoy SSR and the SKB Works "Avtoelektropribor" based on this experimental instrument to develop a standard design of the type PKP-1 (RZhR-1). A variant worked out for operation with beta rays permits measuring, e.g., a masut flow at pressures of 6 kg/cm² and more, for throughputs from some liters to 4,000 l/h. Such instruments are also suited for contactless speedometry, i.e., measurements of speed of rotating parts at difficultly accessible

Card 2/3

Instrument for Measurement and Automatic
Control of the Flow Rate of a Liquid by
Radioactive Radiation

S/089/61/010/001/015/020
B006/B063

spots. There is 1 figure.

Card 3/3

SHMULOVSKIY, N.N.; GUSHCHIN, Yu.V.

Instrument for the measurement and automatic control of the rate of
flow of a liquid by means of radioactive radiation. Atom. energ. 10
no.1:93-94 Ja '61. (MIRA 13:12)
(Flowmeters)

44309
S/058/62/000/012/048/048
A062/A101

9.6150
21.6070

AUTHOR:

Gushchin, Yu. V.

TITLE: Novel types of receivers for radioactive radiations

PERIODICAL: Referativnyy zhurnal, Fizika, no. 12, 1962, 21 - 22, abstract
12-4-42sh (In collection: "Avtomat. regulirovaniye i upr.", Moscow,
AN SSSR, 1962, 212 - 221)

TEXT: The author describes the properties and gives the characteristics of various types of semiconductor receivers for radioactive radiations, the dosimetric characteristics and the dependence of the relaxation time constant of a CdS receiver on the value of the supply voltage and the dose of γ -radiation. Novel types of receivers are described for recording feeble radiations: a semiconductor receiver of the scintillation type, a semiconductor receiver provided with a filter. In the former, scintillation phosphors are used for preliminary energy conversion of the incident γ -rays. The spectral characteristic of the phosphor radiation fairly corresponds to the characteristic of semiconductor elements of the CdS or CdWO₄ type, which are "secondary" stages of the receiver.

Card 1/2

Novel types of receivers for radioactive radiations

S/058/62/000/012/048/048
A062/A101

The sensitivity theory of such receivers is given. The receivers provided with a filter are destined to recording β -rays. The β -rays fall onto the filter (a thin metal plate Tl-204, Sr-90), and excite and ionize its atoms. A secondary radiation then takes place with an energy approximating the energy of the X-ray spectrum. The absorption of the latter in the semiconductor material (CdS) brings about a change of its conductivity. In the two receiver types use is made of thick layers of material having heavy atoms, which absorb well the radioactive radiations. A block diagram is given of a semiconductor intensity meter including a CdS-receiver. The small sizes and the low supply voltage (1 - 50 v) of the CdS elements ensure greater possibilities for their applications in apparatus for measurement and automatic control in slow processes (from a few seconds and more). There are 11 references.

✓
Yu. R.

[Abstracter's note: Complete translation]

Card 2/2

GUSHCHIN, YU. V.

55

PHASE I BOOK EXPLOITATION SOV/6012

Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.

Avtomatycheskoye regulirovaniye i upravleniye (Automatic Regulation and Control) Moscow, Izd-vo AN SSSR, 1962. 526 p. Errata slip inserted. 9000 copies printed.

Resp. Ed.: Ya. Z. Tsyplkin, Professor, Doctor of Technical Sciences; Ed. of Publishing House: Ye. M. Grigor'yev; Tech. Ed.: I. N. Dorokhina.

PURPOSE: This book is intended for scientific research workers and engineers concerned with automation.

COVERAGE: The book is a collection of articles consisting of papers delivered at the 7th Conference of Junior Scientists of the Institute of Automation and Telemechanics, Academy of Sciences USSR, held in March 1960. A wide range of scientific and technical questions relating to automatic regulation and control is covered.

Card 1/12

Automatic Regulation (Cont.)

SOV/6012

The articles are organized in seven sections, including automatic control systems, automatic process control, computing and decision-making devices, automation components and devices, statistical methods in automation, theory of relay circuits and finite automatic systems, and automated electric drives. No personalities are mentioned. References are given at the end of each article.

TABLE OF CONTENTS:

PART I. AUTOMATIC CONTROL SYSTEMS

Andreychikov, B. I. The effect of dry friction and slippage [play] on error during reverse gear operation of servo-feed systems

3

Andreychikov, B. I. Dynamic accuracy of machine tools with programmed control

14

Card 2/12

Automatic Regulation (Cont.)

SOV/6012

PART II. AUTOMATIC PROCESS CONTROL

Viktorov, V. A. Effect of the higher harmonics of a coaxial
vibrator on the efficiency of an extremal resonant
cavity level gauge

200

Gushchin, Yu. V. New types of radioactive emission detectors

212

Kalmakov, A. A. Automatic control by x-ray spectrometry of
metallic composition in alloys and nonferrous-metal ore
concentrates

222

Prusov, M. A. Measuring the temperature of rotating parts

231

Card 6/12

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